

The Importance of Spatial Reasoning for Geospatial Education

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Abstract

Spatial reasoning is a critical component of ability in STEM studies and an important factor in academic success. Yet it is not measured as a distinct factor in education assessment, usually lumped in with mathematical skills. It is also a skill that can be taught and improved, as well as assessed through simple tests. Spatial reasoning has been defined as “the ability to generate, retain, retrieve, and transform well-structured visual images” by Lohman (1993, p. 3). “Spatial reasoning is linked to positive educational outcomes in STEM and is a strong predictor of success in the visual arts, and vocational, manufacturing and technical careers” (Wai & Uttal, 2018, p. 1). Another body of material has found spatial reasoning to be a strong predictor of success over and above math and verbal reasoning, and “that spatial ability has a unique role in the development of creativity, beyond the roles played by the abilities traditionally measured in educational selection, counseling, and industrial-organizational psychology” (Kell *et al.*, 2013, p. 1831).

Apart from the obvious importance for geospatial education, spatial reasoning ability is strongly correlated with academic performance across the academic spectrum. Being able to teach and improve this ability means that geospatial education has the potential to enhance access to and ability in a wide range of other disciplines. Therefore spatial reasoning has the potential to be used as a recruitment tool and to be used as a means of enhancing the attractiveness of geospatial programs and courses. In this paper the authors will explore the potential for expanding the role of geospatial educators and programs in advancing spatial reasoning in the wider population.

References

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